SEQUENCE LISTING

<110> Sibley, David R.
      Monsma, Frederick J.
      Hamblin, Mark

<120> The ST-B17 Serotonin Receptor

<130> NIH047.1CP1C1

<140> US 09/829,631
<141> 2001-04-10

<150> US 08/428,242
<151> 1995-09-18

<160> 13

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<210> 1
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
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<223> primer

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aagcttatga araagggcag scarcagagg kyrma   35

<210> 3
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 3
aagcatagca ggaaggcctt gaaggccagc ctg   33

<210> 4
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 4
ggcgagaaat acgccctgaa gttctcccgg gac   33

<210> 5
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 5
ttgccaatac tactctaagg tgcagcttcc   30

<210> 6
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 6
cacacgactt aactccatag agtcgatcgg   30

<210> 7
<211> 1914
<212> DNA
<213> Rat

<220>
<221> CDS
<222> (439)...(1749)

<400> 7
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agactgcccc ggccggaagg cgggagttcg gctcctgctc ccacatcccc agctgtgccc 120
ctagccagga accccacccc catcttatgg catccccggt ggccctattc catcccaggg 180
ctctcatcca gccccaagct aactttcatt gactcgtcac atcagtaccc ctccccaaac 240
ttcttacccg agtactccag gtggccctgc gtaggaggca cccctacaac tcctcccgat 300

- 2 -

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ctcttgaaat cgctgctcga tgacctaaga accccgtttt gccaatacta ctctaaggtg 360
cagcttcctt tctcctcctt tgccttcacc ctgtacctgc agtcaccata tcccgtcttg 420
gtcctcaacc cagtcccc atg gtt cca gag cca ggc cct gtc aac agt agc 471
                    Met Val Pro Glu Pro Gly Pro Val Asn Ser Ser
                     1                5                      10

acc cca gcc tgg ggt ccc ggg cca ccg cct gct ccg ggg ggc agc ggc     519
Thr Pro Ala Trp Gly Pro Gly Pro Pro Pro Ala Pro Gly Gly Ser Gly
                15                  20                  25

tgg gtg gct gcc gcg ctg tgc gtg gtc atc gtg ctg aca gca gcc gcc     567
Trp Val Ala Ala Ala Leu Cys Val Val Ile Val Leu Thr Ala Ala Ala
            30                  35                  40

aat tcg ctg ctg atc gtg ctc att tgc acg cag ccc gcc gtg cgc aac     615
Asn Ser Leu Leu Ile Val Leu Ile Cys Thr Gln Pro Ala Val Arg Asn
        45                  50                  55

acg tct aac ttc ttt ctg gtg tcg ctc ttc acg tcg gac ttg atg gtg     663
Thr Ser Asn Phe Phe Leu Val Ser Leu Phe Thr Ser Asp Leu Met Val
60                  65                  70                  75

ggg ttg gtg gtg atg ccc cca gcc atg ctg aac gcg ctg tat ggg cgc     711
Gly Leu Val Val Met Pro Pro Ala Met Leu Asn Ala Leu Tyr Gly Arg
                80                  85                  90

tgg gtg tta gct cga ggc ctc tgt ctg ctt tgg act gcc ttc gac gtg     759
Trp Val Leu Ala Arg Gly Leu Cys Leu Leu Trp Thr Ala Phe Asp Val
            95                  100                 105

atg tgc tgc agc gcc tcc atc ctc aac ctc tgc ctc atc agc ctg gac     807
Met Cys Cys Ser Ala Ser Ile Leu Asn Leu Cys Leu Ile Ser Leu Asp
            110                 115                 120

cgc tac ctg ctc atc ctc tcg ccg ctg cgc tac aag ctg cgc atg aca     855
Arg Tyr Leu Leu Ile Leu Ser Pro Leu Arg Tyr Lys Leu Arg Met Thr
        125                 130                 135

gcc ccg cga gcc ctg gcg ctc atc ctg ggt gcc tgg agc ctc gcg gcg     903
Ala Pro Arg Ala Leu Ala Leu Ile Leu Gly Ala Trp Ser Leu Ala Ala
140                 145                 150                 155

ctt gcc tcc ttc cta ccc ctc ttg ctg ggc tgg cac gaa ctg ggc aaa     951
Leu Ala Ser Phe Leu Pro Leu Leu Leu Gly Trp His Glu Leu Gly Lys
                160                 165                 170

gct cga aca cct gcc cct ggc cag tgc cgc cta ttg gcc agc ctg cct     999
Ala Arg Thr Pro Ala Pro Gly Gln Cys Arg Leu Leu Ala Ser Leu Pro
                175                 180                 185

ttt gtc ctc gtg gcg tcc ggc gtc acc ttt ttc ctg cct tcg ggt gcc     1047
Phe Val Leu Val Ala Ser Gly Val Thr Phe Phe Leu Pro Ser Gly Ala
            190                 195                 200

atc tgc ttc acc tac tgc agg atc ctt ctg gct gcc cgc aag cag gcg     1095
```

```
          Ile Cys Phe Thr Tyr Cys Arg Ile Leu Leu Ala Ala Arg Lys Gln Ala
          205             210             215


          gtg caa gtg gcc tcg ctc acc acg ggc acg gct ggc cag gcc ttg gaa    1143
          Val Gln Val Ala Ser Leu Thr Thr Gly Thr Ala Gly Gln Ala Leu Glu
          220             225             230             235


          acc ttg cag gtg ccc agg aca cca cgc cca ggg atg gag tcc gct gac    1191
          Thr Leu Gln Val Pro Arg Thr Pro Arg Pro Gly Met Glu Ser Ala Asp
                          240             245             250


          agt agg cgt ctg gcc acc aag cat agc agg aag gcc ttg aag gcc agc    1239
          Ser Arg Arg Leu Ala Thr Lys His Ser Arg Lys Ala Leu Lys Ala Ser
                      255             260             265


          ctg acc ctg ggc atc ctg ctg gga atg ttc ttt gtc acc tgg ctg ccc    1287
          Leu Thr Leu Gly Ile Leu Leu Gly Met Phe Phe Val Thr Trp Leu Pro
                      270             275             280


          ttc ttt gtg gcc aac ata gct cag gcc gtg tgt gac tgc atc tcc cca    1335
          Phe Phe Val Ala Asn Ile Ala Gln Ala Val Cys Asp Cys Ile Ser Pro
                      285             290             295


          ggc ctc ttc gat gtc ctc aca tgg ctg ggg tac tgt aat agc acc atg    1383
          Gly Leu Phe Asp Val Leu Thr Trp Leu Gly Tyr Cys Asn Ser Thr Met
          300             305             310             315


          aac cct atc atc tac ccg ctc ttt atg cgg gac ttc aag agg gcc ctg    1431
          Asn Pro Ile Ile Tyr Pro Leu Phe Met Arg Asp Phe Lys Arg Ala Leu
                          320             325             330


          ggc agg ttc ctg cat gcg tcc act gtc ccc cgg agc acc ggc cag ccc    1479
          Gly Arg Phe Leu His Ala Ser Thr Val Pro Arg Ser Thr Gly Gln Pro
                      335             340             345


          tgc ctc ccc ctc cat gtg gac ctc tca cag cgg tgc cag acc agg cct    1527
          Cys Leu Pro Leu His Val Asp Leu Ser Gln Arg Cys Gln Thr Arg Pro
                      350             355             360


          cag ctg cag cag gtg ctc gct ctg cct ctg ccg cca aac tca gat tca    1575
          Gln Leu Gln Gln Val Leu Ala Leu Pro Leu Pro Pro Asn Ser Asp Ser
                      365             370             375


          gac tcc gct tca ggg ggc acc tcg ggc ctg cag ctc aca gcc cag ctt    1623
          Asp Ser Ala Ser Gly Gly Thr Ser Gly Leu Gln Leu Thr Ala Gln Leu
          380             385             390             395


          ctg ctg cct gga gag gcc aca cgg gac ccc ccg cca ccc acc agg gcc    1671
          Leu Leu Pro Gly Glu Ala Thr Arg Asp Pro Pro Pro Thr Arg Ala
                          400             405             410


          acc act gtg gtc aac ttc ttt gtc aca gac tct gtg gag cct gag ata    1719
          Thr Thr Val Val Asn Phe Phe Val Thr Asp Ser Val Glu Pro Glu Ile
                      415             420             425
```

```
cgg ccg cat cca ctc agt tcc ccc gtg aac tgaccaggtc aagagctggc      1769
Arg Pro His Pro Leu Ser Ser Pro Val Asn
        430                 435


cattggaggc cacattcccg gagctctcag cccactctcc ctgagactag gaggtggtag 1829
gtctcctgag agtgtgctga attgaggtat ctcagctagc ccatcttctg ctgcagctcc 1889
ttgactgagg ggtagtcaga cacat                                       1914


<210> 8
<211> 437
<212> PRT
<213> Rat


<400> 8
Met Val Pro Glu Pro Gly Pro Val Asn Ser Ser Thr Pro Ala Trp Gly
  1               5                  10                  15
Pro Gly Pro Pro Pro Ala Pro Gly Gly Ser Gly Trp Val Ala Ala Ala
                20                  25                  30
Leu Cys Val Val Ile Val Leu Thr Ala Ala Ala Asn Ser Leu Leu Ile
                35                  40                  45
Val Leu Ile Cys Thr Gln Pro Ala Val Arg Asn Thr Ser Asn Phe Phe
    50                  55                  60
Leu Val Ser Leu Phe Thr Ser Asp Leu Met Val Gly Leu Val Val Met
65                  70                  75                  80
Pro Pro Ala Met Leu Asn Ala Leu Tyr Gly Arg Trp Val Leu Ala Arg
                85                  90                  95
Gly Leu Cys Leu Leu Trp Thr Ala Phe Asp Val Met Cys Cys Ser Ala
            100                 105                 110
Ser Ile Leu Asn Leu Cys Leu Ile Ser Leu Asp Arg Tyr Leu Leu Ile
            115                 120                 125
Leu Ser Pro Leu Arg Tyr Lys Leu Arg Met Thr Ala Pro Arg Ala Leu
        130                 135                 140
Ala Leu Ile Leu Gly Ala Trp Ser Leu Ala Ala Leu Ala Ser Phe Leu
145                 150                 155                 160
Pro Leu Leu Leu Gly Trp His Glu Leu Gly Lys Ala Arg Thr Pro Ala
                165                 170                 175
Pro Gly Gln Cys Arg Leu Leu Ala Ser Leu Pro Phe Val Leu Val Ala
            180                 185                 190
Ser Gly Val Thr Phe Phe Leu Pro Ser Gly Ala Ile Cys Phe Thr Tyr
        195                 200                 205
Cys Arg Ile Leu Leu Ala Ala Arg Lys Gln Ala Val Gln Val Ala Ser
    210                 215                 220
Leu Thr Thr Gly Thr Ala Gly Gln Ala Leu Glu Thr Leu Gln Val Pro
225                 230                 235                 240
Arg Thr Pro Arg Pro Gly Met Glu Ser Ala Asp Ser Arg Arg Leu Ala
                245                 250                 255
Thr Lys His Ser Arg Lys Ala Leu Lys Ala Ser Leu Thr Leu Gly Ile
            260                 265                 270
Leu Leu Gly Met Phe Phe Val Thr Trp Leu Pro Phe Phe Val Ala Asn
        275                 280                 285
Ile Ala Gln Ala Val Cys Asp Cys Ile Ser Pro Gly Leu Phe Asp Val
    290                 295                 300
Leu Thr Trp Leu Gly Tyr Cys Asn Ser Thr Met Asn Pro Ile Ile Tyr
305                 310                 315                 320
Pro Leu Phe Met Arg Asp Phe Lys Arg Ala Leu Gly Arg Phe Leu His
```

```
                    325                  330                  335
Ala Ser Thr Val Pro Arg Ser Thr Gly Gln Pro Cys Leu Pro Leu His
            340                  345                  350
Val Asp Leu Ser Gln Arg Cys Gln Thr Arg Pro Gln Leu Gln Gln Val
            355                  360                  365
Leu Ala Leu Pro Leu Pro Pro Asn Ser Asp Ser Asp Ser Ala Ser Gly
370                  375                  380
Gly Thr Ser Gly Leu Gln Leu Thr Ala Gln Leu Leu Leu Pro Gly Glu
385                  390                  395                  400
Ala Thr Arg Asp Pro Pro Pro Pro Thr Arg Ala Thr Thr Val Val Asn
            405                  410                  415
Phe Phe Val Thr Asp Ser Val Glu Pro Glu Ile Arg Pro His Pro Leu
            420                  425                  430
Ser Ser Pro Val Asn
            435


<210> 9
<211> 2108
<212> DNA
<213> Rat


<220>
<221> CDS
<222> (439)...(1311)


<221> intron
<222> (1312)...(1505)


<221> CDS
<222> (1506)...(1943)


<400> 9
ccaacccccca cgcgcgacac gtggtgatct aacgtactca cacgcccacc cttctcgaag 60
agactgcccc ggccggaagg cgggagttcg gctcctgctc ccacatcccc agctgtgccc 120
ctagccagga accccacccc catcttatgg catccccggt ggccctattc catcccaggg 180
ctctcatcca gccccaagct aactttcatt gactcgtcac atcagtaccc ctccccaaac 240
ttcttacccg agtactccag gtggccctgc gtaggaggca cccctacaac tcctcccgat 300
ctcttgaaat cgctgctcga tgacctaaga accccgtttt gccaatacta ctctaaggtg 360
cagcttcctt tctcctcctt tgccttcacc ctgtacctgc agtcaccata tcccgtcttg 420
gtcctcaacc cagtcccc atg gtt cca gag cca ggc cct gtc aac agt agc    471
                    Met Val Pro Glu Pro Gly Pro Val Asn Ser Ser
                    1               5                   10


acc cca gcc tgg ggt ccc ggg cca ccg cct gct ccg ggg ggc agc ggc   519
Thr Pro Ala Trp Gly Pro Gly Pro Pro Pro Ala Pro Gly Gly Ser Gly
            15                  20                  25


tgg gtg gct gcc gcg ctg tgc gtg gtc atc gtg ctg aca gca gcc gcc   567
Trp Val Ala Ala Ala Leu Cys Val Val Ile Val Leu Thr Ala Ala Ala
            30                  35                  40


aat tcg ctg ctg atc gtg ctc att tgc acg cag ccc gcc gtg cgc aac   615
Asn Ser Leu Leu Ile Val Leu Ile Cys Thr Gln Pro Ala Val Arg Asn
            45                  50                  55
```

```
acg tct aac ttc ttt ctg gtg tcg ctc ttc acg tcg gac ttg atg gtg    663
Thr Ser Asn Phe Phe Leu Val Ser Leu Phe Thr Ser Asp Leu Met Val
60                  65                  70                  75

ggg ttg gtg gtg atg ccc cca gcc atg ctg aac gcg ctg tat ggg cgc    711
Gly Leu Val Val Met Pro Pro Ala Met Leu Asn Ala Leu Tyr Gly Arg
                80                  85                  90

tgg gtg tta gct cga ggc ctc tgt ctg ctt tgg act gcc ttc gac gtg    759
Trp Val Leu Ala Arg Gly Leu Cys Leu Leu Trp Thr Ala Phe Asp Val
                95                  100                 105

atg tgc tgc agc gcc tcc atc ctc aac ctc tgc ctc atc agc ctg gac    807
Met Cys Cys Ser Ala Ser Ile Leu Asn Leu Cys Leu Ile Ser Leu Asp
            110                 115                 120

cgc tac ctg ctc atc ctc tcg ccg ctg cgc tac aag ctg cgc atg aca    855
Arg Tyr Leu Leu Ile Leu Ser Pro Leu Arg Tyr Lys Leu Arg Met Thr
            125                 130                 135

gcc ccg cga gcc ctg gcg ctc atc ctg ggt gcc tgg agc ctc gcg gcg    903
Ala Pro Arg Ala Leu Ala Leu Ile Leu Gly Ala Trp Ser Leu Ala Ala
140                 145                 150                 155

ctt gcc tcc ttc cta ccc ctc ttg ctg ggc tgg cac gaa ctg ggc aaa    951
Leu Ala Ser Phe Leu Pro Leu Leu Leu Gly Trp His Glu Leu Gly Lys
                160                 165                 170

gct cga aca cct gcc cct ggc cag tgc cgc cta ttg gcc agc ctg cct    999
Ala Arg Thr Pro Ala Pro Gly Gln Cys Arg Leu Leu Ala Ser Leu Pro
            175                 180                 185

ttt gtc ctc gtg gcg tcc ggc gtc acc ttt ttc ctg cct tcg ggt gcc    1047
Phe Val Leu Val Ala Ser Gly Val Thr Phe Phe Leu Pro Ser Gly Ala
            190                 195                 200

atc tgc ttc acc tac tgc agg atc ctt ctg gct gcc cgc aag cag gcg    1095
Ile Cys Phe Thr Tyr Cys Arg Ile Leu Leu Ala Ala Arg Lys Gln Ala
    205                 210                 215

gtg caa gtg gcc tcg ctc acc acg ggc acg gct ggc cag gcc ttg gaa    1143
Val Gln Val Ala Ser Leu Thr Thr Gly Thr Ala Gly Gln Ala Leu Glu
220                 225                 230                 235

acc ttg cag gtg ccc agg aca cca cgc cca ggg atg gag tcc gct gac    1191
Thr Leu Gln Val Pro Arg Thr Pro Arg Pro Gly Met Glu Ser Ala Asp
                240                 245                 250

agt agg cgt ctg gcc acc aag cat agc agg aag gcc ttg aag gcc agc    1239
Ser Arg Arg Leu Ala Thr Lys His Ser Arg Lys Ala Leu Lys Ala Ser
            255                 260                 265

ctg acc ctg ggc atc ctg ctg gga atg ttc ttt gtc acc tgg ctg ccc    1287
Leu Thr Leu Gly Ile Leu Leu Gly Met Phe Phe Val Thr Trp Leu Pro
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ttc ttt gtg gcc aac ata gct cag gtaaaatgat gaccgtgaag gtgggatgag  1341
Phe Phe Val Ala Asn Ile Ala Gln
        285                    290

cttaggtctg accggagaga cgccatgctt cactgggcaa aggtgggagg gaggaggatg  1401
gctcatctgt ggtgcctgtg tctgtgtttc tgtcctatcc ctgctgggtg ggtagcctgg  1461
gtccctgcct gggacatggg gtgtgatgag tcttatctcc acag gcc gtg tgt gac  1517
                                              Ala Val Cys Asp
                                                           295

tgc atc tcc cca ggc ctc ttc gat gtc ctc aca tgg ctg ggg tac tgt  1565
Cys Ile Ser Pro Gly Leu Phe Asp Val Leu Thr Trp Leu Gly Tyr Cys
                300                305                310

aat agc acc atg aac cct atc atc tac ccg ctc ttt atg cgg gac ttc  1613
Asn Ser Thr Met Asn Pro Ile Ile Tyr Pro Leu Phe Met Arg Asp Phe
                315                320                325

aag agg gcc ctg ggc agg ttc ctg cat gcg tcc act gtc ccc cgg agc  1661
Lys Arg Ala Leu Gly Arg Phe Leu His Ala Ser Thr Val Pro Arg Ser
                330                335                340

acc ggc cag ccc tgc ctc ccc ctc cat gtg gac ctc tca cag cgg tgc  1709
Thr Gly Gln Pro Cys Leu Pro Leu His Val Asp Leu Ser Gln Arg Cys
        345                350                355

cag acc agg cct cag ctg cag cag gtg ctc gct ctg cct ctg ccg cca  1757
Gln Thr Arg Pro Gln Leu Gln Gln Val Leu Ala Leu Pro Leu Pro Pro
360                365                370                375

aac tca gat tca gac tcc gct tca ggg ggc acc tcg ggc ctg cag ctc  1805
Asn Ser Asp Ser Asp Ser Ala Ser Gly Gly Thr Ser Gly Leu Gln Leu
                380                385                390

aca gcc cag ctt ctg ctg cct gga gag gcc aca cgg gac ccc ccg cca  1853
Thr Ala Gln Leu Leu Leu Pro Gly Glu Ala Thr Arg Asp Pro Pro Pro
                395                400                405

ccc acc agg gcc acc act gtg gtc aac ttc ttt gtc aca gac tct gtg  1901
Pro Thr Arg Ala Thr Thr Val Val Asn Phe Phe Val Thr Asp Ser Val
                410                415                420

gag cct gag ata cgg ccg cat cca ctc agt tcc ccc gtg aac  1943
Glu Pro Glu Ile Arg Pro His Pro Leu Ser Ser Pro Val Asn
        425                430                435

tgaccaggtc aagagctggc cattggaggc acattcccg gagctctcag cccactctcc  2003
ctgagactag gaggtggtag gtctcctgag agtgtgctga attgaggtat ctcagctagc  2063
ccatcttctg ctgcagctcc ttgactgagg ggtagtcaga cacat  2108
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<210> 10
<211> 291
<212> PRT
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<400> 10

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Met Val Pro Glu Pro Gly Pro Val Asn Ser Ser Thr Pro Ala Trp Gly
1               5                   10                  15
Pro Gly Pro Pro Pro Ala Pro Gly Gly Ser Gly Trp Val Ala Ala Ala
                20                  25                  30
Leu Cys Val Val Ile Val Leu Thr Ala Ala Ala Asn Ser Leu Leu Ile
            35                  40                  45
Val Leu Ile Cys Thr Gln Pro Ala Val Arg Asn Thr Ser Asn Phe Phe
        50                  55                  60
Leu Val Ser Leu Phe Thr Ser Asp Leu Met Val Gly Leu Val Val Met
65                  70                  75                  80
Pro Pro Ala Met Leu Asn Ala Leu Tyr Gly Arg Trp Val Leu Ala Arg
                85                  90                  95
Gly Leu Cys Leu Leu Trp Thr Ala Phe Asp Val Met Cys Cys Ser Ala
            100                 105                 110
Ser Ile Leu Asn Leu Cys Leu Ile Ser Leu Asp Arg Tyr Leu Leu Ile
            115                 120                 125
Leu Ser Pro Leu Arg Tyr Lys Leu Arg Met Thr Ala Pro Arg Ala Leu
    130                 135                 140
Ala Leu Ile Leu Gly Ala Trp Ser Leu Ala Ala Leu Ala Ser Phe Leu
145                 150                 155                 160
Pro Leu Leu Leu Gly Trp His Glu Leu Gly Lys Ala Arg Thr Pro Ala
                165                 170                 175
Pro Gly Gln Cys Arg Leu Leu Ala Ser Leu Pro Phe Val Leu Val Ala
                180                 185                 190
Ser Gly Val Thr Phe Phe Leu Pro Ser Gly Ala Ile Cys Phe Thr Tyr
            195                 200                 205
Cys Arg Ile Leu Leu Ala Ala Arg Lys Gln Ala Val Gln Val Ala Ser
    210                 215                 220
Leu Thr Thr Gly Thr Ala Gly Gln Ala Leu Glu Thr Leu Gln Val Pro
225                 230                 235                 240
Arg Thr Pro Arg Pro Gly Met Glu Ser Ala Asp Ser Arg Arg Leu Ala
                245                 250                 255
Thr Lys His Ser Arg Lys Ala Leu Lys Ala Ser Leu Thr Leu Gly Ile
                260                 265                 270
Leu Leu Gly Met Phe Phe Val Thr Trp Leu Pro Phe Phe Val Ala Asn
    275                 280                 285
Ile Ala Gln
    290
```

<400> 11

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Ala Val Cys Asp Cys Ile Ser Pro Gly Leu Phe Asp Val Leu Thr Trp
1               5                   10                  15
Leu Gly Tyr Cys Asn Ser Thr Met Asn Pro Ile Ile Tyr Pro Leu Phe
                20                  25                  30
Met Arg Asp Phe Lys Arg Ala Leu Gly Arg Phe Leu His Ala Ser Thr
            35                  40                  45
```

```
Val Pro Arg Ser Thr Gly Gln Pro Cys Leu Pro Leu His Val Asp Leu
    50                  55              60
Ser Gln Arg Cys Gln Thr Arg Pro Gln Leu Gln Gln Val Leu Ala Leu
65                  70              75                      80
Pro Leu Pro Pro Asn Ser Asp Ser Asp Ser Ala Ser Gly Gly Thr Ser
                85                  90                  95
Gly Leu Gln Leu Thr Ala Gln Leu Leu Leu Pro Gly Glu Ala Thr Arg
            100             105             110
Asp Pro Pro Pro Pro Thr Arg Ala Thr Thr Val Val Asn Phe Phe Val
        115             120             125
Thr Asp Ser Val Glu Pro Glu Ile Arg Pro His Pro Leu Ser Ser Pro
    130             135             140
Val Asn
145
```

<210> 12
<211> 1647
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (135)...(1454)

<221> misc_feature
<222> (1)...(1647)
<223> n = A,T,C or G

<400> 12

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actcacctcc cccggggggc gtggtgagtc gcggtctgtt ctcacgacgg tccccgtcca 60
gcctgcggtt cgccggggcc ctcatctgct ttcccgccac cctatcactc ccttgccgtc 120
caccctcggt cctc atg gtc cca gag ccg ggc cca acc gcc aat agc acc      170
               Met Val Pro Glu Pro Gly Pro Thr Ala Asn Ser Thr
                1                5                   10


ccg gcc tgg ggg gca ggc gcc cgt cgn nng ggg ggc agc ggc tgg gtg   218
Pro Ala Trp Gly Ala Gly Ala Arg Arg Xaa Gly Gly Ser Gly Trp Val
            15                  20              25


gcg gcc ggc ctg tgc gtg gtc atc gcg ctg acg gcg gcg gcc aac tcg   266
Ala Ala Gly Leu Cys Val Val Ile Ala Leu Thr Ala Ala Ala Asn Ser
        30                  35              40


ctg ctg atc gcg ctc atc tgc act cag ccc gcg ctg cgc aac acg tcc   314
Leu Leu Ile Ala Leu Ile Cys Thr Gln Pro Ala Leu Arg Asn Thr Ser
45                  50                  55                      60


aac ttc ttc ctg gtg tcg ctc ttc acg tct gac ctg atg gtc ggg ctg   362
Asn Phe Phe Leu Val Ser Leu Phe Thr Ser Asp Leu Met Val Gly Leu
                65                  70                  75


gtg gtg atg ccg ccg gcc atg ctg aac gcg ctg tac ggg cgc tgg gtg   410
Val Val Met Pro Pro Ala Met Leu Asn Ala Leu Tyr Gly Arg Trp Val
                80                  85                  90
```

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```
ctg gcg cgc ggc ctc tgc ctg ctc tgg acc gcc ttc gac gtg atg tgc     458
Leu Ala Arg Gly Leu Cys Leu Leu Trp Thr Ala Phe Asp Val Met Cys
            95                  100                 105

tgc agc gcc tcc atc ctc aac ctc tgc ctc atc agc ctg gac cgc tac     506
Cys Ser Ala Ser Ile Leu Asn Leu Cys Leu Ile Ser Leu Asp Arg Tyr
        110                 115                 120

ctg ctc atc ctc tcg ccg ctg cgc tac aag ctg cgc atg acg ccc ctg     554
Leu Leu Ile Leu Ser Pro Leu Arg Tyr Lys Leu Arg Met Thr Pro Leu
125                 130                 135                 140

cgt gcc ctg gcc cta gtc ctg ggc ggc tgg agc ctc gcc gct ctc gcc     602
Arg Ala Leu Ala Leu Val Leu Gly Gly Trp Ser Leu Ala Ala Leu Ala
                145                 150                 155

tcc ttc ctg ccc ctg ctg ctg ggc tgg cac gag ctg ggc cac gca cgg     650
Ser Phe Leu Pro Leu Leu Leu Gly Trp His Glu Leu Gly His Ala Arg
                160                 165                 170

cca ccc gtc cct ggc cag tgc cgc ctg ctg gcc agc ctg cct ttt gtc     698
Pro Pro Val Pro Gly Gln Cys Arg Leu Leu Ala Ser Leu Pro Phe Val
                175                 180                 185

ctt gtg gcg tcg ggc ctc acc ttc ttc ctg ccc tcg ggt gcc ata tgc     746
Leu Val Ala Ser Gly Leu Thr Phe Phe Leu Pro Ser Gly Ala Ile Cys
        190                 195                 200

ttc acc tac tgc agg atc ctg cta gct gcc cgc aag cag gcc gtg cag     794
Phe Thr Tyr Cys Arg Ile Leu Leu Ala Ala Arg Lys Gln Ala Val Gln
205                 210                 215                 220

gtg gcc tcc ctc acc acc ggc atg gcc agt cag gcc tcg gag acg ctg     842
Val Ala Ser Leu Thr Thr Gly Met Ala Ser Gln Ala Ser Glu Thr Leu
                225                 230                 235

cag gta ccc agg agc cca gcg gca ggg gtg gag tct gct gac agc agg     890
Gln Val Pro Arg Ser Pro Ala Ala Gly Val Glu Ser Ala Asp Ser Arg
                240                 245                 250

cgt cta gca acg aag agc agc agg aag ggc ctg aag gcc agc atg acg     938
Arg Leu Ala Thr Lys Ser Ser Arg Lys Gly Leu Lys Ala Ser Met Thr
                255                 260                 265

ctg ggc atc ctg ctg ggc atg ttc ttt gtg acc tgg ttg ccc ttc ttt     986
Leu Gly Ile Leu Leu Gly Met Phe Phe Val Thr Trp Leu Pro Phe Phe
        270                 275                 280

gtg gcc aac ata gtc cag gcc gtg tgc gac tgc atc tcc cca ggc ctc    1034
Val Ala Asn Ile Val Gln Ala Val Cys Asp Cys Ile Ser Pro Gly Leu
285                 290                 295                 300

ttc gat gtc ctc aca tgg ctg ggt tac tgt aac agc acc atg aac ccc    1082
Phe Asp Val Leu Thr Trp Leu Gly Tyr Cys Asn Ser Thr Met Asn Pro
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atc atc tac cca ctc ttc atg ctg gac ttc aag cgg gcg ctg ggc agg   1130
Ile Ile Tyr Pro Leu Phe Met Leu Asp Phe Lys Arg Ala Leu Gly Arg
        320             325                 330

ttc ctg cca tgt cca cgc tgt ccc cgg gag ccc agg cca gcc tgg cct   1178
Phe Leu Pro Cys Pro Arg Cys Pro Arg Glu Pro Arg Pro Ala Trp Pro
        335             340                 345

cgc cat cac tgc gca cct ctc aca gcg gcc ccc ggc ccg gcc tta gcc   1226
Arg His His Cys Ala Pro Leu Thr Ala Ala Pro Gly Pro Ala Leu Ala
    350             355                 360

tac agc agg tgc tgc cgc tgc ccc tgc cgc cgg act cag att cgg act   1274
Tyr Ser Arg Cys Cys Arg Cys Pro Cys Arg Arg Thr Gln Ile Arg Thr
365             370             375                 380

cag acg cag gct cag gcg gct cct cgg gcg tgc ggc tca cgg ccc agc   1322
Gln Thr Gln Ala Gln Ala Ala Pro Arg Ala Cys Gly Ser Arg Pro Ser
                385             390                 395

tgc tgc ttc ctg gcg agg cca ccc agg acc ccc cgc tgc cca cca ggg   1370
Cys Cys Phe Leu Ala Arg Pro Pro Arg Thr Pro Arg Cys Pro Pro Gly
        400             405                 410

ccg ctg ccg ccg tca att tct tca aca tcg sac ccc gcg gag ccc gag   1418
Pro Leu Pro Pro Ser Ile Ser Ser Thr Ser Xaa Pro Ala Glu Pro Glu
        415             420                 425

ctg cgg ccg cat cca ctt ggc atc ccc acg aac tga cccggcttgg        1464
Leu Arg Pro His Pro Leu Gly Ile Pro Thr Asn  *
        430             435


ggctggccaa tggggagctg gattgagcag aacccagacc ctgagtcctt gggccagctc 1524
ttggctaaga ccaggaggct gcaagtctcc tagaagccct ctgagctcca gaggggtgcg 1584
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aga                                                               1647
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<212> PRT
<213> Homo sapiens

<220>
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<223> Xaa = Any Amino Acid

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Ala Gly Ala Arg Xaa Xaa Gly Gly Ser Gly Trp Val Ala Ala Gly Leu
            20                  25                  30
Cys Val Val Ile Ala Leu Thr Ala Ala Ala Asn Ser Leu Leu Ile Ala
```

```
                35                      40                      45
Leu Ile Cys Thr Gln Pro Ala Leu Arg Asn Thr Ser Asn Phe Phe Leu
     50                      55                      60
Val Ser Leu Phe Thr Ser Asp Leu Met Val Gly Leu Val Val Met Pro
65                      70                      75                      80
Pro Ala Met Leu Asn Ala Leu Tyr Gly Arg Trp Val Leu Ala Arg Gly
                        85                      90                      95
Leu Cys Leu Leu Trp Thr Ala Phe Asp Val Met Cys Cys Ser Ala Ser
                100                     105                     110
Ile Leu Asn Leu Cys Leu Ile Ser Leu Asp Arg Tyr Leu Leu Ile Leu
                115                     120                     125
Ser Pro Leu Arg Tyr Lys Leu Arg Met Thr Pro Leu Arg Ala Leu Ala
                130                     135                     140
Leu Val Leu Gly Gly Trp Ser Leu Ala Ala Leu Ala Ser Phe Leu Pro
145                     150                     155                     160
Leu Leu Leu Gly Trp His Glu Leu Gly His Ala Arg Pro Pro Val Pro
                165                     170                     175
Gly Gln Cys Arg Leu Leu Ala Ser Leu Pro Phe Val Leu Val Ala Ser
                180                     185                     190
Gly Leu Thr Phe Phe Leu Pro Ser Gly Ala Ile Cys Phe Thr Tyr Cys
                195                     200                     205
Arg Ile Leu Leu Ala Ala Arg Lys Gln Ala Val Gln Val Ala Ser Leu
                210                     215                     220
Thr Thr Gly Met Ala Ser Gln Ala Ser Glu Thr Leu Gln Val Pro Arg
225                     230                     235                     240
Ser Pro Ala Ala Gly Val Glu Ser Ala Asp Ser Arg Arg Leu Ala Thr
                245                     250                     255
Lys Ser Ser Arg Lys Gly Leu Lys Ala Ser Met Thr Leu Gly Ile Leu
                260                     265                     270
Leu Gly Met Phe Phe Val Thr Trp Leu Pro Phe Phe Val Ala Asn Ile
                275                     280                     285
Val Gln Ala Val Cys Asp Cys Ile Ser Pro Gly Leu Phe Asp Val Leu
                290                     295                     300
Thr Trp Leu Gly Tyr Cys Asn Ser Thr Met Asn Pro Ile Ile Tyr Pro
305                     310                     315                     320
Leu Phe Met Leu Asp Phe Lys Arg Ala Leu Gly Arg Phe Leu Pro Cys
                        325                     330                     335
Pro Arg Cys Pro Arg Glu Pro Arg Pro Ala Trp Pro Arg His His Cys
                340                     345                     350
Ala Pro Leu Thr Ala Ala Pro Gly Pro Ala Leu Ala Tyr Ser Arg Cys
                355                     360                     365
Cys Arg Cys Pro Cys Arg Arg Thr Gln Ile Arg Thr Gln Thr Gln Ala
                370                     375                     380
Gln Ala Ala Pro Arg Ala Cys Gly Ser Arg Pro Ser Cys Cys Phe Leu
385                     390                     395                     400
Ala Arg Pro Pro Arg Thr Pro Arg Cys Pro Pro Gly Pro Leu Pro Pro
                405                     410                     415
Ser Ile Ser Ser Thr Ser Xaa Pro Ala Glu Pro Glu Leu Arg Pro His
                420                     425                     430
Pro Leu Gly Ile Pro Thr Asn
                435
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